

REMARKS/ARGUMENTS

Claims 1-5 and 11-14 are pending in the application.

Applicant has surprisingly found that the walls of flexible pressurized containers, such as gas bags for lighter than air vehicles, can be significantly improved by providing at least two plies of cloth comprising fibers within a specific denier range and having specific compositions, weaves and orientations. By controlling the recited fiber characteristics, Applicant has unexpectedly produced a helium impervious material for flexible pressurized containers which is exceptionally strong.

Claim 1 recites a helium impervious material for a wall of a flexible pressurized container comprising at least two plies of cloth, said cloth having a weight of 150 to 450 g/m², said cloth comprising fiber having a denier generally between 180 and 280 and the fill of the individual plies at 90 degrees to each other, said fibers of said cloth selected from the group consisting of extended chain polyethylene polymer in a rip stop weave architecture and a thermotropic liquid crystalline polymer in a 2x2 basket weave architecture. Such a material having the combination of features recited in Claim 1 is not taught or suggested by the prior art of record.

Claims 1-5 and 11-14 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Tanaka et al. '491 in view of Coombs '136. Tanaka et al. '491 discloses a water-resistant, high-strength laminate useful as sailcloth for board sailing. Coombs '136 relates to a fabric laminate for a vapor permeable protective garment. Neither Tanaka et al. '491 nor Coombs '136 disclose or suggest a hydrogen impervious material as presently claimed. The references further fail to teach or suggest the combined fiber characteristics recited in Claim 1.

It is submitted that Tanaka et al. '491 and Coombs '136 cannot properly be combined. One skilled in the art seeking to modify the sailcloth material of Tanaka et al. '491 would not look to the vapor permeable garment material of Coombs '136 for possible modifications. Moreover, Coombs '136 teaches away from the presently claimed hydrogen impervious material by disclosing a cloth that is specifically designed to form a vapor permeable moisture barrier.

In addition, even if the teachings of Tanaka et al. '491 and Coombs '136 could properly be combined, the combination would not yield the invention recited in Claim 1, since neither Tanaka et al. '491 nor Coombs '136 disclose or suggest a material that is impervious to helium. Applicant traverses the statement in the Office Action that:

because Tanaka et al. comprises the same materials as required by Applicant, the product of Tanaka et al. would naturally be helium impervious.

First, Tanaka et al. '491 does not comprise the same materials having the fiber characteristics as specifically recited in Claim 1. Second, it is submitted that the material of Tanaka et al. '491 is not helium impervious. The sailcloth material of Tanaka et al. '491 does not need to be helium impervious to function for its intended sailcloth purpose. Moreover, Tanaka et al. '491 explicitly specifies that the material is water resistant and possesses high strength, high modulus, transparency, lightness in weight, good handling and resistance to light (see column 1, lines 53-58). Nowhere does Tanaka et al. '491 teach or suggest that the material is helium impervious. Those skilled in the art, recognizing that the material of Tanaka et al. '491 is used as a sailcloth material, would understand that the material of Tanaka et al. '491 is not helium impervious, as presently claimed.

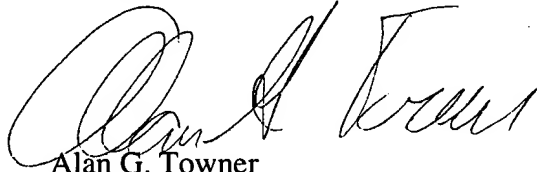
The prior art of record therefore fails to render the invention recited in Claim 1 prima facie obvious.

The dependent claims add further limitations that are neither disclosed nor suggested by the cited references. For example, claim 2 requires that the plies are joined together by a thermoplastic polyurethane elastomer resin; claim 4 requires that the plies are joined together by a polyester terephthalate film bonded to the outer side of said material; claims 12 and 13 specify the minimum tear warp of the material; and claim 14 specifies that the material has a permeability of less than 1 liter/m²/day/atm of helium. It is respectfully submitted that these dependent claim elements are neither disclosed nor suggested by the cited references.

In view of the foregoing remarks, it is submitted that Claims 1-5 and 11-14 are patentable over the prior art of record. Accordingly, an early Notice of Allowance of this application is respectfully requested.

In the event that any outstanding matters remain in connection with this application, the Examiner is invited to telephone the undersigned at (412) 263-4340 to discuss such matters.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Alan G. Towner", is written over the typed name.

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